



US 20200294956A1

(19) **United States**(12) **Patent Application Publication**
Hartmann et al.(10) **Pub. No.: US 2020/0294956 A1**(43) **Pub. Date: Sep. 17, 2020**(54) **ARRANGEMENT AND METHOD FOR
JOINING AT LEAST TWO JOINING
PARTNERS**(2013.01); *H01L 2224/32225* (2013.01); *H01L*
2224/83053 (2013.01); *H01L 2224/8384*
(2013.01); *H01L 2224/75301* (2013.01); *H01L*
2224/7555 (2013.01); *H01L 24/32* (2013.01);
H01L 2224/75821 (2013.01)(71) Applicant: **Infineon Technologies AG**, Neubiberg
(DE)(72) Inventors: **Steffen Hartmann**, Bad Sassendorf
(DE); **Roland Speckels**, Kamen (DE)(21) Appl. No.: **16/806,844**(22) Filed: **Mar. 2, 2020**(30) **Foreign Application Priority Data**

Mar. 12, 2019 (EP) 19162070.7

Publication Classification(51) **Int. Cl.**
H01L 23/00 (2006.01)(52) **U.S. Cl.**
CPC **H01L 24/75** (2013.01); **H01L 24/83**
(2013.01); **H01L 2224/7565** (2013.01); **H01L**
2224/75252 (2013.01); **H01L 2224/83203**(57) **ABSTRACT**

An arrangement for joining two joining members includes a first part having a support surface, a first carrier element configured to carry at least one foil, a transportation unit configured to arrange the first carrier element such that the foil is arranged above the support surface in a vertical direction, and a second part configured to exert pressure to a joining stack, when the joining stack is arranged on the support surface. The joining stack includes a first joining member arranged on the support surface, a second joining member, and an electrically conductive connection layer arranged between the joining members. When pressure is exerted to the joining stack, the foil is arranged between the second part and the joining stack and is pressed onto the joining stack and the joining stack is pressed onto the first part, compressing the connection layer and forming a substance-to-substance bond between the joining members.

